

DISCOURSE

ON THE

PREPARATION of the BODY

FOR THE

SMALL-P O X:

AND

The Manner of receiving the INFECTION.

As it was deliver'd in the Publick Hall of the ACADEMY,
before the TRUSTEES, and others, on *Wednesday*,
the 21st of *November*, 1750.

By ADAM THOMSON, Physician in Philadelphia.

*In Stibio, & Mercurio, ad magnam penetrabilitatem arte deductis, nec tamen salina
acrimonia nimium corrosivis, sed bene unitis, ut quæramus (remedium, nempe,
specificum Antivariolosum,) incitat aliquis horum aliquando successus. APH.
HERM. BOERH. No. 1392.*

Prophylaxis insitiva videtur satis certa, tutaque. Idem, Ibidem. No. 1403.

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DISCUSSION

ON THE

PREPARATION OF THE BODY

FOR THE

EXAMINATION

AND

THE METHOD OF RECEIVING THE INSTRUCTION

As it was delivered in the Public Hall of the Academy
before the JUDGES, and others, on Wednesday
the 21st of November, 1750.

BY MRS. MARGARET MASON, Physician in Ordinary.

The Author's Design is to present to the Public a
short and plain Account of the Preparation of the Body
for the Examination, and the Method of receiving the
Instruction, as it was delivered in the Public Hall of the
Academy, on Wednesday the 21st of November, 1750.

LONDON: Printed by J. DODD, in Pall-mall.

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1750.

P R E F A C E.

THE Day after this Discourse was delivered, being at a House where I was told it had given great Offence to some of the Profession in Town, I happened to take up a Book, which presented to me the following Passage, “ * Had the Author writ a Book to expose the Abuses in Law, or in Physick, he believes the learned Professors in either Faculty, would have been so far from resenting it, as to have given him Thanks for his Pains, especially if he had made an honourable Reservation for the true Practice of either Science.” Now, tho’ I did not write designedly to expose the Abuses in Physick, yet in what is accidentally hinted on that Subject, I believe it will scarcely be denied that I have made an honourable Reservation for the true Practice of the Science. Neither have I so much as pretended to be capable of effecting any one Thing but what I have expressly acknowledged any other duly qualified Physician can do likewise. To whom then I would desire to know, can there be given any just Cause of Offence? The Answer must be, To none but those who are conscious of being Quacks, for a Quack, who did not believe himself to be one, could not take Offence, because he would think himself possessed of those Qualifications that are said to be necessary for a Physician, and consequently not affected by any Thing said against Quackery: Nay, I should imagine it would be wrong Policy even in one who knew himself to be a Quack to take Offence, for that would be pleading guilty.

HAD I indeed confin’d the Character of a Physician to a Graduate, or restricted the Method of studying the Science to certain Opportunities, which every one of the Practitioners here may not have enjoy’d, the Case would have been different; but whatever may be my Opinion of these Mat-
 A 2 ters,

* Apology for the Tale of the Tub, Edit. 9. Lond.

ters, I have no where declared it ; having only contended in general, that Physick is a Science founded on just and rational Principles, and that the Knowledge of these Principles are absolutely necessary to qualify a Man for being a safe practical Physician. Whoever is possessed of the necessary Qualifications, let him come by them which Way he will, and whether he has a Diploma or not (for it must be owned a Diploma is often easily and undeservedly obtained) is to all Intents and Purposes, in the Sense I have used the Term, a duly qualified Physician : And whoever has them not, be his Pretensions what they will, is a Quack. 'Tis true, I have hinted, that this Matter is for the most Part too slightly examined into, and unqualified Persons too often trusted in America ; but this is so notorious a Truth, that it is almost in every Body's Mouth ; and I never met with a Practitioner in America, even among the lowest Class of them I ever convers'd with, but what would freely own it. At present, therefore, seeing there is no just Cause of Offence given, tho' I have been frequently told great Offence has been taken, yet not being certain of it, having only heard it in general without any Names, I must suppose it either a false Rumour, or that those who are offended, did not hear the Discourse, and have had a wrong Representation of the Matter given them, which they will be convinced of upon seeing the Piece itself.

BUT as the Manner this Performance came to be usher'd into the World, was something uncommon in these Parts, I must beg Leave to be a little more particular concerning it.

IT is a Thing very well known, that in all Places set apart for universal Education, publick Orations on physical Subjects, as well as on any other Branch of natural Knowledge, are exceeding common. Yet in Reality the Discourse was not originally writ with that View, for I had actually finished what I intended for the Publick on the Subject, before I had any Thoughts of delivering it as a publick Oration. But reflecting there was an Academy newly erected here, and finding the Length of the Discourse would suit such a Design, I thought there would be nothing amiss in desiring the President, if he approv'd of it, to propose it to the Trustees, which was accordingly done and agreed to without any Objection, as I was informed both by the President, and other of the Trustees. The Novelty of the Thing, however, I understand, affords Matter of Sneer to some few, who, perhaps, are unwilling to own the true Motives of their Disapprobation. But whatever these may be, I am quite easy under the Consciousness of having meant well.

AS some late Miscarriages in Inoculation, tho' but very few, had stagger'd many People about a Practice, which I was firmly persuaded in my own Mind, was of the most salutary Nature, I thought it my Duty to give
a State

a State of my Opinion to the Publick, together with the Reasons of it, in hopes that what had convinced me, might possibly convince others: Besides this, I conceived I had something new and useful to offer, at least Improvements on the common Methods of Management: And seeing these Things related to a Distemper at present in this Place, I cannot think unprejudiced People will judge it unseasonable.

WHAT is interspersed concerning the Qualifications of a Physician, and the Abuses of the Practice of Physick, fell naturally in my Way, and are pointed at no particular Person living, as the Discourse itself, which is printed verbatim as it was delivered, will plainly show, whatever Misrepresentations may have been spread to the contrary. If these Things be true, seeing the Welfare of Mankind is concerned in the Dispute, it could never be wrong to mention them: If any Man thinks them false, he has a Right to make it appear, the Press is free. For my own Part, I shall always be open to Conviction, and ready to acknowledge my Error in the same publick Way I have committed it, or to give my Reasons in Reply, if I should not be convinced. This I imagine is the fair Way of settling a Dispute that so nearly concerns the Publick; for most certainly, who is or is not qualified to be entrusted with the Management of the Sick, is a Matter of no small Importance to every Community. Any other Method of condemning what is said relating to that Affair, whether by low invidious Insinuations, to raise Clamour and Prejudice against the Author, which is altogether unworthy of Gentlemen; or by pretending with an Air of Consequence and superior Abilities, it was not worth While to confute it (a very common Pretence among weak, conceited Creatures, when they really can say nothing to the Purpose) I make no Question but every Thing of this Kind would be easily seen through by sensible impartial Men, and attributed to its just Cause.

TO conclude; if the Piece has any Merit, it will find Friends in this Place, I make no doubt, as well as elsewhere; and if two or three People were to take it into their Heads, from a high Notion of their Interest and Influence, that what they should be pleased to say about the Matter, must determine its Reception, I fancy they would in the End find themselves mistaken: But on the contrary, if the Piece has no Merit, there is no Occasion to put it to the Rack, it will soon die of itself, and be deservedly neglected and forgotten.

A
 D I S C O U R S E
 O N T H E

Preparation of the Body for the SMALL-POX, and
 the Manner of receiving the *Infection*, &c.

Much honoured and worthy Gentlemen, Trustees of this Academy,

HA V I N G some Things to offer which I conceive may be of publick Benefit, I thought they could not be more properly address'd, than to a Sett of Gentlemen, who were so sensible of the Necessity and Usefulness of Academical Learning, as to become, in the most generous and disinterested Manner, the first Promoters of it in this Place. In all Places for Education, *Medicine* has been ever accounted one of the most useful Branches of natural Knowledge; and every Attempt to improve any Part of it, has been always countenanced and encourag'd by the Friends and Well-wishers of the liberal Arts. I make no Doubt then but you will favour me with your Attention, while I propose some Things to your Consideration relating to the SMALL-POX, a Disease at present in this Place, and which oftentimes proves fatal in every Part of the World where it has hitherto been known. As I have not been us'd to harangue in this publick Manner, I rely entirely on your Candour and Good-nature, to make a proper Allowance for all Defects in Point of Oratory. *Truth*, indeed, stands seldom in Need of any Embellishments, and often appears to the greatest Advantage when dress'd in its own native Simplicity; more especially these Sort of Truths which are rather intended to convince the Mind than excite the Passions. The Flowers of *Rhetoric* on such Occasions, appear, for the most Part, only as so many specious and superfluous Ornaments. I shall endeavour, therefore, to deliver myself with all the Plainness and Brevity I am capable, and the Nature of the Subject will admit.

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EVER since the SMALL-Pox appear'd in the World, it has always been accounted a dangerous, and frequently a mortal Distemper: When the Disease is violent, it is certainly extremely dangerous in its own Nature, but capable of being rendered much more so by a wrong Management. The *hot Regimen*, which was universally practis'd before Sydenham's Time, and by too many since, has hurried Numbers out of the World, which might have been easily sav'd by a different Treatment: But every Thing relating to the Management of the Patient thro' the Course of the Distemper having been so fully handled by others, I propose not to dwell upon it in the present Discourse. My principal Design is, to offer some Things concerning *the Preparation of the Body*, and *the Manner of receiving the Infection*; which, from any Thing I have yet seen, appears to me, never to have been consider'd with that Attention the Importance of the Subject deserves: This too seems the more necessary, as there are some Points relating to this Matter, of the utmost Consequence to the Life and Safety of Numbers of Mankind, concerning which, People are by no Means agreed in their Opinions.

WITHOUT farther Introduction then in treating this Subject, I propose to observe the following Method.

I. *I shall premise some general Things, and enquire a little into the Nature of this Disease.*

II. *From these Premises I shall endeavour to show what State of the Body is best fitted to receive the Infection, and how it ought to be prepared, as well in those who receive it in the natural Way, as in those who take it by Inoculation.*

III. *I shall try to discuss this Question, viz. Whether it be safest and most obligible to run the Risque of catching this Distemper without any Precaution in the natural Way; to take the Infection in the natural Way premeditatedly after due Preparation; or by Inoculation? And,*

LASTLY, *I shall conclude with a few Reflections on the whole.*

To begin then with the first Thing in the Method, which was to *premise some general Things, and enquire a little into the Nature of this Disease*. Tho' * some have taken a good deal of Pains to show, that the SMALL-Pox was described by the old Greek Physicians, under the Title of *Carbuncle*, yet I must own myself of the same Opinion with the learned and judicious Sydenham,† that the Places quoted in Proof of it, are most unreasonably wrested, and that in Reality the SMALL-Pox is not to be found described either in *Hippocrates* or *Galen*. Had it existed at that Time in the World, he thinks so sagacious an Observer as *Hippocrates*, would not fail'd to have described it with his usual Exactness and Accuracy, so as to leave

* Vid. *Variolorum Antiquitates e Græcis erutæ*. D. Hahn.

† *Opera Universa*. Edit. noviss. Lugdun. Batavor. Pag. 240.

leave no room for any Dispute. The *Arabians*, therefore, seem to have been the first who have handed us down any authentic Accounts of this Disease.

IT seems highly probable, as well from Reason as Observation, that those epidemic Diseases which cannot be accounted for from the manifest Qualities of the Air, (*viz.* Heat and Cold, Moisture and Dryness) have their Beginning, Encrease, Perfection, Declination and Period; and this, perhaps, in a great Measure, from the various Exhalations, that according to the different and unknown Alterations happening in the Bowels, or on the Surface of the Earth, taint the Atmosphere with hurtful *Miasmata*, which, tho' they be too subtile to undergo the Examination of the Senses, may yet act at certain Conjunctions on the human Frame, and produce particular Diseases. This, I say, may be, and very probably is the general Cause of all epidemic Diseases which do not depend upon the manifest Qualities of the Air. Now, tho' the *variolous* Contagion, is generally taken from an infected Person, yet it is plain from Facts that the Disease is often epidemic, and that this epidemical Constitution of the Air is sometimes more, and sometimes less pernicious: Nay, so strongly was the Air of *England* tainted with an epidemical Constitution of this Sort for the Space of near three Years (*viz.* in the Years 1667, 1668, and Part of 1669) that great Numbers during that Season, who had already suffered the SMALL-Pox, were seized with what Dr. *Sydenham* calls a * *Variolous Fever*, from its having every distinguishing Symptom of that Distemper, the Eruption of Pustles alone excepted: At the same Time too, the SMALL-Pox was very frequent among those who never had the Distemper before. It is very likely that the Fuel for this Disease always existed in the human Blood, for the *Indian* Natives of *America*, where the SMALL-Pox was never known, before the *Europeans* came amongst them, catch it as readily from an infected Person, as any other. Yet it seems very probable the SMALL-Pox never appear'd in the World, before a *variolous* epidemical Constitution of the Air called it forth.

BUT it will be more to the present Purpose to enquire a little into the Nature and Effects of this Disease, now it has appear'd, than to examine when, or how it came into the World. Now it appears in every Instance, that after the Variolous Contagion, whatever Way communicated, is mix'd with the Mass of Blood of any Person who never had the Disease, it always produces an inflammatory Fever. And in Proportion to the Violence of the Disease, so always are the Symptoms of this contagious Fever, in so much that from these, for the most part, a pretty exact Prognostic may be form'd, whether the Disease will be more or less dan-

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dangerous in its Issue. † Blood taken from a Person in the Beginning of this first Stage of the Fever, makes the same Appearance as in sound Health ; but after it has continued three or four Days, it looks inflam'd and fizy, exactly like the Blood of a Person in a *Pleurisy*, or any other inflammatory Disorder. So nearly allied are the Symptoms of this contagious Fever to that of a simple inflammatory One, that unless a Physician from other § Circumstances had Reason to suspect this Disorder, the very best might be liable to be deceiv'd. All the succeeding Appearances in the Progress of the Disorder are evidently of the same Kind. The *Eruption* is no other than a Number of small Inflammations, which, when the Disease is moderate, regularly ripen into thick white, or yellowish Matter, and form small *Abscesses*, from which, however numerous they may be, there is seldom much Danger under due Management. On the other hand, when the Disease is violent, the dangerous Appearances are all of the *gangrenous* Kind, arising from a *putrid* Dissolution of the Blood, which are still the genuine Effects of a higher and more exasperated Degree of the inflammatory Fever. The narrow Limits of this Design will not permit me to enter into a more minute Detail of Particulars ; but it would be easy to show, that every threatening and mortal Symptom of this Disease proceeds from the Causes assign'd. I shall conclude, therefore, what I propos'd to premise in general concerning this Disease, with supposing it sufficiently prov'd, that whatever be the more hidden and abstruse Nature of the Variolous Contagion, when it comes to be mix'd with the Blood of a Person who never had the SMALL POX, it is possess'd of a stimulating Power, which produces an inflammatory Fever, and that frequently of the worst and most dangerous Sort.

I proceed now to the second Thing propos'd, which was *to endeavour to shew, from the foregoing Premises, what State of the Body is best fitted to receive the Infection, and how it ought to be prepar'd, as well in those who take it in the natural Way, as in those who take it by Inoculation.* In general then, as it appears from what has been offer'd, that the whole Danger of this Distemper proceeds from a high inflammatory Fever, producing a putrid Dissolution of the Blood, that State of the Vessels which is the least dispos'd to favour Inflammation, and that State of the Fluids which will be aptest to resist Putrefaction, must certainly be that State of the Body which is best fitted to receive this Disease. Now soft and flexible Vessels, containing a cool and temperate Blood, has been found, by universal * Experience and Observation, to be this State. Hence it is that old People, whose Vessels are stiff and rigid, are more indanger'd by the SMALL POX, as well as all other inflammatory Disorders, than Young. And

† *Aphorism. Herman. Boerhaav.* Edit. Leydens. quarta. N° 1384.

§ *Idem. Ibid.* N° 1387.

* *Idem. Ibid.* N° 1381.

And hence, likewise, those whose Blood is heated by High-living and strong Liquors, are in greater Danger by the same Distempers, than those who live more temperately. A very small Attention will easily discover the Reason of this. Every inflammatory Fever, as well as every topical Inflammation, is attended with an Obstruction in the small Vessels; and surely the more lax, and moveable these Vessels are, the more easily will these obstructed Particles find a Passage through them. Again, *Putrefaction* is always occasion'd by too much Heat, and animal Heat is generated by the *Attrition* of the circulating Blood, and the Action of the Vessels: Now the more soft, rare, and inelastic the Bodies engag'd in Attrition are, the less Heat will be produc'd, *cæteris paribus*: But it appears, by many Experiments, that hot and intemperate Blood is compos'd of much more dense, compacted, and elastic Parts, than cool and temperate, and the Vessels that contain it are generally more tense and rigid; therefore a much greater Degree of Heat will be excited, even supposing the same Celerity of Circulation in both. A very moderate Skill in the Doctrine of Attrition, I imagine, is sufficient to discover the Force of this Reasoning. But besides this, cool and temperate Blood would much longer resist Putrefaction in the same Degree of Heat and Motion with that of hot and intemperate. For the Blood is compos'd of what we eat and drink, considerably alter'd indeed by the Action of the animal Organs, yet still retaining a good deal of the Nature of the Food it was form'd from. Now the temperate Blood here spoken of, is such as is chiefly form'd from a cooling, vegetable, or Milk Diet; and the intemperate such as principally comes from hot, inflaming, animal Food, with high season'd Sauces, diluted perhaps with spirituous Liquors. But Milk, and all Vegetables (a few hot *Antiscorbuticks* excepted) by heat turn *acid*, which is directly opposite to *Putrefaction*, and resists it: Whereas, on the other hand, all animal Food, either Flesh or Fish, naturally tends to Putrefaction, and stands in no need of the Heat introduc'd by high season'd Sauces, or spirituous Liquors, to encrease and assist it. On this Account it is that the Flesh of those Animals, who live upon other Animals, putrefies a good deal sooner, than the Flesh of those who live intirely on Vegetables, in the same Degree of heat. Nay, most of the rapacious Birds of Prey, even while alive, have a foetid Smell. And it is certain, from Experience, that the human Body cannot subsist long on animal Food alone, unless it be qualified with Salt or Acids, without falling into putrid Disorders. * *Van Swieten* relates as an Instance of this, that while the great *Boerhaave* was himself afflicted with violent rheumatic Pains, he propos'd to live intirely for some Time on Veal-Broth without Salt, in hopes it would both serve for Nourishment, and as a soft

Medicine to sheath and blunt the Acrimony of the Humours which caused the Pain; but he could not bear it beyond five Days, and was obliged to fly to the Use of *acescent* Whey, upon which he lived wholly for a long Time, with great Relief from his Pain. Whoever reflects duly on these Things will, I imagine, be fully satisfied, that soft and flexible Vessels, containing a cool and temperate Blood, prepared chiefly from a sub-acid vegetable, or Milk Diet, must be in general that State of the Body which is best fitted to receive an inflammatory Distemper, whose dangerous Effects is a putrid Dissolution of the Blood, which was previously shewn to be the Case in the SMALL-POX.

BUT I foresee an Objection which may probably be raised against what has been advanced. It may be ask'd, if this Matter be as it has been stated, how comes it pass, that sometimes a strong, lusty, gross Person, who takes the SMALL-POX in the natural Way without any Precaution, shall have it very moderately, whilst another, again, of a thin, spare, and seemingly more advantageous Habit, perhaps too, after a careful Preparation, shall have it in a much more violent Manner? It is undeniable Matter of Fact, that there have been Instances, which if they do not come up fully to this Case, at least come very near it: No body, however, I believe, will alledge that I have not done compleat Justice to the Objection; and I confess, at first Sight, it looks very plausible, but I think will admit of a fair and satisfactory Answer: First, then; it ought to be remembered, that a thin, spare Person, may have hot putrescent Blood, whilst the same Fluid in a more corpulent Habit, may be much more cool and temperate. Secondly; By a careful Preparation, is for the most Part meant, an abstemious Diet, with Bleeding and Purging: But I must beg Leave to observe, that Errors are easily committed in pursuing this Course. By such Evacuations, and too abstemious a Diet, the Patient may be render'd too weak to undergo so tedious a Disease, and by over-purging, the Blood may be easily rendered hot, acrid and putrescent, which would be much worse than no Preparation at all; so that it requires more Skill to judge how far that Regimen, and these Evacuations, are proper in different Constitutions, than is generally imagined: And if the Qualifications of those who are often entrusted with the Direction of such Affairs be candidly considered, there can, I think, little Doubt be made that they are frequently injudiciously used. But, thirdly; To give the Objection its full Force, let it be granted that sometimes (for the apparent Instances are but rare) the best prepared Body has the Disease worst, nothing more will follow than that those rare Instances are Exceptions from a general Rule, and it is said that all general Rules have Exceptions. The Observations of the ablest † Physicians are all in Favour of what has been advanced, particularly those of the judicious

† *Aphorism. Herm. Boerh. N° 1381.*

ous Sydenham, to whom the World is indebted for almost all they know, both of the History and Cure of this Distemper. No Man ever had better Opportunities of making Observations; no Man ever observed with more Accuracy; and it is universally allow'd, that no Man ever related his Observations with more Candour. He tells us, he observ'd in general, that old People fared worse under this Disease than young, and Men worse than Women, the latter being naturally of a softer and laxer Texture: That young Men again, in the Flower of their Youth, whose Blood was heated by free Living, were more in Danger than those who had not yet entered into Company: Nay, that the Children of poor People, who live chiefly on a homely vegetable and Milk Diet, generally had this Disease more moderately than the Children of rich People, who were us'd to higher Feeding. These Things, I should think, are sufficient to establish the Truth of what was laid down, and remove the Objection; but perhaps, before what is intended to be said on some other Matters relating to the Preparation of the Body, be finished, these Instances on which the Objection is founded, may be made a proper Use of, and accounted for. I go on, therefore, to offer something farther on that Subject.

Now tho' the State of the Vessels, and Temper of Blood described, be certainly a most useful and necessary Part of the Preparation, yet I am humbly of Opinion, something more may be done; I think too, I have Reason from what I have experienc'd in Practice, to be of that Opinion: However, I shall explain myself candidly on this Matter, with as much Perspicuity as I can, freely submitting it to the Judgment and future Experience of others. It appears to me then, highly probable, that there is a certain Quantity of an infinitely subtile Matter, which may be called the *variolous Fuel*, equally, intimately and universally diffused through the Blood of every human Creature, in some more, in others less, that lies still and quiet in the Body, never showing itself in any Manner hitherto discovered, until put in Action by the variolous Contagion, at which Time it is totally expelled in the Course of the Disease. First, I say, this variolous Fuel seems to be infinitely subtile; that is, so subtile as to evade the Discovery of our Senses, assisted by the best Helps yet found; because the Blood of a Person who never had the SMALL-POX, makes the very same Appearance, and affords the same Analysis under the strictest Examination, as the Blood of one who had already suffered the Disease. Secondly; It seems to be equally, intimately and universally diffused thro' the Blood of every human Creature; for we find the Infection may be communicated at all Parts of the Body equally; and all the different Inhabitants of the Globe, *Europeans, Asiatics, Africans, and Americans*, have been hitherto found equally susceptible of the Disease. Thirdly; This

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variolous Fuel, seems in some to be more, in others less in Quantity, and very probably different likewise in Quality, for we see People of the same apparent advantageous Habits, very differently affected with the same Infection. Nor are there any Marks hitherto discovered by which it can be so much as guess'd at, whether any Person has a greater or less Quantity of this *variolous Fuel* in the Blood, or whether it be of a greater or less malignant Quality. And this I think would serve to account for these Instances in a former Objection, where strong, lusty, gross People, sometimes have the Disease very moderately, whilst others again of apparently more advantageous Habits, have it with much greater Violence; because, if the Quantity of this variolous Fuel in the former be small, and its Quality benign, the Fever and all its consequent Effects upon the Blood will be proportionably small; whereas on the other Hand, should those of more advantageous Habits, have it in greater Quantity, or more malignant Quality, tho' the Body would be better prepared to sustain an equal Degree of Fever, yet as this would by no Means be the Case, the Danger would be much greater. But fourthly and lastly; this variolous Fuel lies still and quiet in the Body, until it is put in Action by the variolous Contagion, at which Time it is totally expelled in the Course of the Disease: This is so plain that nothing farther need be offered in Proof of it, than that those who have once had the Distemper, let them be never so much exposed to the Infection afterwards, are not liable to have it a second Time. Yet whether ever there was a well attested Instance of the same Person having the Disease twice, I shall not take upon me to determine. Supposing there was, some uncommon Accident or Particularity in the Constitution may have prevented the total Expulsion of it the first Time. But if there be any such Thing at all, it happens so exceeding rare, that it ought to be consider'd as a Kind of Prodigy, and then the Answer is, that tho' uncommon and extraordinary *Phænomena* of Nature appear sometimes, yet it is never thought a good Argument against reasoning from its usual Course. All the general Appearances then of the SMALL-Pox evidently favour this *Hypothesis*, which is more than can be said of any other that I know of; but it was not with a View to establish a Piece of *Theory* that it was first advanced, I proceed therefore to make the intended Use of it.

If then there be such a subtle Matter in the Blood of all those who never had the SMALL Pox, as, from what has been offer'd, appears; at least, highly probable, it would certainly be of the greatest Benefit to Mankind to find out a *specific Medicine*, which would either expel it entirely, alter it so as to render it quite innocent, or mitigate its malignant Quality. A Specific possess'd of the former Virtues would undoubtedly be the most desirable; yet a Medicine capable only of mitigating the Malignity of the variolous Fuel, would certainly make a noble Preparative for
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the Disease. It has been the Opinion of very eminent* Physicians, that a Specific for the SMALL POX ought to be sought for, and may probably be found. § *Boerhaave* seems to think (for he speaks with Reserve) that from some Things he had seen perform'd by the Use of some of the finer, and milder Preparations of *Antimony* and *Mercury* intimately united, it was well worth while to make farther Trials of them, in order to find out a Specific in this Distemper. As for the general † Antiphlogistic Method, by which the same great Man proposes to check the Distemper in its first Stage, and prevent the Eruption of Pustles, or even after the Pustles have appear'd, to cure the Inflammation, and stop its farther Progress, I cannot take upon me to say how far it may be certain or safe to pursue it, having never seen'd it tried. But || he asserts, there have been many Instances of its Success, while Physicians not apprised of the SMALL POX, treated the Symptoms and Eruption in the same Manner as they would have done any other high inflammatory Fever. The Danger of such a Method would be, that if it did not succeed, the large Bleedings necessary to be us'd, must render the Patient so weak, that he would be very apt to sink under the tedious and trying Course which he must afterwards undergo. This Method, therefore, is not likely to take Place, unless, by repeated Trials on Criminals condemn'd to Death, it was found certain, and to be depended upon. But the Trial of an easy operating antimonial and mercurial Medicine, as a Preparative for receiving the Disease can be attended with no Danger. If it does not alter the variolous Fuel, so as to render it perfectly innocent, or expel it intirely, it may perhaps expel it in Part, or mitigate its malignant Quality; and in either Case the Advantage would be considerable. Tho' I cannot take upon me to assert any Thing positively on this Matter, yet there can be no Harm in relating what I have experienc'd in this Affair. On every Occasion, for the Space of twelve Years that I have been call'd upon to prepare People for the SMALL POX, either for receiving it in the natural Way, or by Inoculation (for I have prepar'd many for both) I have constantly us'd such a Medicine as has been mention'd, and I can honestly declare I never saw one so prepar'd, in any considerable Danger by the Disease. One of them indeed that receiv'd the Infection in the natural Way, had the *confluent* Pock, but I attributed that to his having rid near twenty Miles in cold damp Weather the first Day of the contagious Fever, being taken unwell in the Morning before he set off. However tho' he was a young Gentleman in the Flower of his Youth, he got very safely over it. This Disease is often so easily got over without any Precaution, that many People are unwilling to be at much Trouble about preparing for it, so that eight, ten Days, or a Fortnight, has been

* *Aphor. Boerhaav.* N° 1390.|| *Idem, Ibid.* 1395§ *Idem, Ibid.* 1392.† *Idem, Ibid.* 1393.

been the longest Time I have ever been able to persuade any body to set apart for it, which was too little. For as the variolous Fuel is universally diffus'd, in order to obtain the full Efficacy of the Medicine, the whole Mass of Blood ought to be richly impregnated with it. I met with one Instance, however, which, as it seems a little remarkable, I will take the Liberty to relate. About ten Years ago, in the Family where I lodg'd, there were five Children who had never had the SMALL Pox. The eldest was about twelve Years of Age, and the youngest about two. They were all of healthy Constitutions, born of the same Parents, and liv'd after the same Manner, eating and drinking together every Day. The SMALL Pox came to the Place, and their Mother would not hear of Inoculation. They were kept as much as possible out of the Way of the Distemper; but at last the eldest and youngest were both taken with very violent Symptoms, that presag'd a high and dangerous Degree of the Disease, which indeed they both had, tho' they got over it. This alarm'd the Mother, upon which she desir'd I would prepare the other three for taking the Infection in the natural Way. I gave them a Fortnight's Preparation in the Manner aforesaid, and then they came freely into the Room where the others were. Two of them took the Disease, yet in the most moderate Manner, so as never to lie by an Hour with it. But the third could not catch it at all, notwithstanding he slept in the Bed with his Brothers and Sisters with the SMALL Pox upon them. This young Man is now an Apprentice to a Practitioner in this Town, and he tells me he has been frequently among the SMALL Pox since, and goes at this Time, as he has done for some Time past, freely amongst them every Day, dressing inoculated Sores, &c. yet never has catch'd it to this Hour. I would not be understood to offer this as a Demonstration of what has been suggested, for I know there are Instances of People having resisted very strong Degrees of the Infection, who have afterwards taken it on very slight Occasions, and perhaps this Youth may be amongst that Number. It is far from my Intention to impose by drawing certain Conclusions from doubtful Premises: But after having stated Things fairly, and in the clearest Manner I could, I leave every Man to judge for himself.

I HAVE purposely avoided giving any formal Directions about the Preparation, thinking it sufficient to propose the general Intentions to be pursued, which every judicious Physician easily knows how to execute, and adapt to different Constitutions; for I think none else ought to be intrusted with a Matter of this Sort. Nor do I mean by such, all those who by the Courtesy of *America* are stil'd Doctors, because it is well known that Surgeons, Apothecaries, Chymists, and Druggists, or even mere Smatterers in any of these, are all promiscuously call'd by that Title, as well as real Physicians. I mention this as well to make
People

People a little more careful in examining into the Pretensions of those they intrust as Physicians, for surely it is a most important Trust, as to gain the Method of Preparation propos'd fair play.

HAVING thus finish'd what I intended on the second Thing in the Method, I proceed now in order to the third Thing propos'd, which was to *try to discuss this Question, viz. Whether it be safest and most eligible to run the Risque of catching the SMALL POX in the natural Way without any Precaution, to take the Infection in the natural Way premeditatedly after due Preparation, or by Inoculation?* Now whoever attentively considers what has been said concerning the Nature of this Disease, and the Advantages of a proper Preparation, must, I think, allow that the same Person would certainly have the Disease much more moderately, while his Body was in that State described as the fittest, than if he was to have it under the opposite Circumstances. But no one who runs the Risque of catching the Disease at random can tell but the latter may be his Case. Nay it is most likely to be the Case; for the more hot and putrescent the Blood is, the more tense and active the Vessels are, the apter they will be to imbibe any Thing applied to them. An Instance of this we see in *acute* Fevers, where that is the State of the Blood and Vessels. Let a Person in this Condition drink as much as he will, the Moisture applied to the Vessels of his Mouth and Throat is soon suck'd up, and they quickly again feel parch'd and dry, which evidently shows that this Power of *Absorption* in the Vessels, by which Power alone it is that any Thing is taken into the Blood, is encreased by that very State of the Body which is most unfriendly to the SMALL POX; consequently, a Person will be aptest to catch the Infection when he is worst prepared for it. Seeing this is the Case then, it must certainly be the most dangerous and unsafe Method to run the Risque of catching the Distemper in the natural Way, without any Precaution.

BUT to this some will reply, Allowing the Matter to be as it has been stated, as there are Instances of some who never get the Disease at all, there is a Possibility of escaping it entirely; and besides that, getting a Distemper industriously looks like Presumption, or a tempting of Providence. These Things, I am sensible, have considerable Influence on some People, but, with Submission, they seem to me to have little of any Consequence in them. For first, the Instances of those who never have the SMALL-POX at all, in populous Cities, where the Distemper is frequently among the Inhabitants, (for I speak only of such,) are exceeding rare, at most not one in ten Thousand. This Chance then is so small as scarcely to deserve any Consideration, when the Danger of running the Chance, and the Advantages of the other Method are set in Competition.

But farther, as the Almighty has form'd us rational Beings, he surely intended we should act on rational Motives; now Certainty is often out of our Reach,

and Probabilities are the only rational Motives we have to act upon in most Cases. The Probability therefore of the greatest Safety being so strongly on the Side contended for, there can be no Presumption in acting agreeable to it; otherwise taking the most probable Means for Self-preservation, a Principle ingrafted in us by the Author of our Nature, would be acting presumptuously against him, which is a palpable Absurdity. The Presumption in neglecting the most probable Means of Safety, seems rather to lie on the other Side. But, in truth, tho' it be reckoned Presumption by some, yet there are many Things of the same Sort practised every Day by these very People, without any Scruple. Who amongst them, for instance, would hesitate to bleed, vomit, or purge, in order to prevent any dangerous Disease, which they had but the slightest Reason to be apprehensive of? And yet Bleeding, Vomiting and Purging, are all as real Diseases as the SMALL-Pox, while they last, and such as have proved mortal too, even when they have been industriously brought on: Yet no Body calls this Practice Presumption, or a tempting of Providence. The Case, I think, is exactly the same with respect to the voluntary Way of taking the SMALL-Pox. A less Danger is willingly embraced to avoid a greater, not on slight Grounds, but with great Probability apprehended. Thus I have endeavour'd to obviate an Objection, which I have known to stick with Numbers of well-meaning but scrupulous Minds, and I thought it my Duty to do so in a Discourse intended for the Publick, tho' perhaps it may have been unnecessary to the Bulk of more intelligent People: But having already shewn that to run the Risque of catching the SMALL-Pox in the natural Way without any Precaution, is by far the most unsafe Method, I proceed to examine, *Whether it be safest and most eligible to take the Infection premeditatedly in the natural Way, after due Preparation, or by Inoculation?*

AND first it may not be improper to remark, that, after due Pains taken to prepare the Vessels, one cannot be so certain of taking the Infection in the natural Way, as by Inoculation. The Regimen and Medicines would probably render the Vessels not so ready to catch it, which might considerably prolong the Care and Caution necessary to be used before the Affair was over: So that supposing both Ways of receiving the Infection equally safe, Inoculation ought to be preferred. But that we may search into the Bottom of this Matter, let us in the next Place suppose the Body equally prepared in both Cases, when the Infection is received, and then the only Difference will be in the Manner of receiving it, which, if I am not much deceived, will appear, on a strict Examination, to be of much more Importance than is generally imagined, and greatly in favour of Inoculation. As the Contagion in infected Places is always contained in the Air, when it is received in the natural Way, it must be taken in by the
Vessels

Vessels of the Nose, Mouth, Throat, Lungs, or Stomach, from the Air drawn in by *Inspiration*, or swallowed down by *Deglutition*. For, tho' the external Skin abounds with bibulous Vessels, yet but little of that is exposed; and besides, their Orifices neither being so open, nor so moist, are not so fitly disposed to take in any Thing applied to them in that Manner. But the internal Coats of the Nose, Mouth, Throat, Air Vessels of the Lungs and Stomach, are all lined with a lubricating *Mucus*, fit to entangle the infectious *Miasmata*, and the *inhalant* Vessels of these Parts are always open, and ready to suck up and convey into the Blood whatever is applied to them: So that should the Contagion in the Air at any Time be strong enough to enter the *inhalant* Vessels of the external Skin, it would certainly enter the Vessels of these internal Parts at the same time, as it must be applied to them with such superior Advantages. Now the peculiar Advantage of Inoculation, I take to be this, that by this Method the Infection is convey'd into the Blood by the external Vessels alone, and that only from one particular Spot, which may be chose in any Part of the Body. It may be worth while therefore, to examine in what this peculiar Excellency particularly consists.

It is a Thing well known, that the Danger of all inflammatory Distempers almost wholly depends upon the Nature and Function of the Part where the Inflammation principally fixes. An Inflammation in the Legs or Arms for Example, or any external Part, is not near so dangerous as one in the *Viscera* of any of the Cavities of the Belly, Breast, or Brain. When the Inflammation suppurates in the former Case, it may always be cured, and often when it gangrenes; but any considerable Quantity of Matter lodg'd in any of the three Cavities mentioned, almost always proves mortal, and a Gangrene there is certain Death. Whatever then will be instrumental in determining the Crisis of the inflammatory Fever rais'd by the variolous Contagion, towards the internal and more noble Parts, must be hurtful and dangerous; whereas on the other Hand, whatever tends to lead this Crisis outwardly, and to the more remote Parts, must be highly advantageous and serviceable. That the Method of receiving the variolous Infection in the natural Way is of the former, and that by Inoculation of the latter Sort, appears to me strongly supported by the following Observations.

FIRST, we observe, that in other Poisons which induce an Inflammation or Gangrene, it principally affects those Parts where the Poison first enters, whether it be the internal Coats of the Nose, Mouth, Throat, Lungs and Stomach, or the external Surface of the Body. Secondly; It has been remark'd that the Pustles round the inoculated Part are generally very thick; nay I have often observed the whole Side on which the Inoculation was made, to be much thicker of Pustles than the other. Thirdly; The Wound itself, tho' made small, which would otherwise heal up in a few
C 2 Days,

Days, often becomes an ill-conditioned Sore, and keeps running in most Cases for the Space of a Month, and in some a good deal longer. Fourthly; I have taken particular Notice, that those who take the Disease by Inoculation, even when the Pock is equally numerous upon the Surface of the Body, are not near so subject to Sore Throats, and these other Symptoms which show the internal Parts affected, as those who take the Infection in the natural Way. From all which it would appear, that tho' the variolous Contagion, which Way soever it enters the Blood, disorders the whole Body, and raises an inflammatory Fever, yet that it affects those Parts it enters at, in a particular Manner, so as to determine the Crisis of the Fever principally that Way. This then, I say, seems to me to be the peculiar Advantage of Inoculation, that it determines the Crisis of the contagious Fever, from the internal and dangerous Parts to the external and less dangerous, which, as has been already shewn, must be of the highest Benefit.

GIVE me Leave to add, as a corroborating Circumstance, that the Effects of the different Ways of taking the Infection as described, will, in my humble Opinion, clearly account for a very remarkable Phenomenon of this Distemper, taken Notice of by * Dr. Sydenham, which hitherto has never been accounted for, at least, that I ever heard of. The Phenomenon is this: That the Danger of the SMALL-Pox is entirely to be estimated by the Number and Nature of the Pustles upon the Face; so that however few and *distinct* they may be upon the rest of the Body, if they are numerous and *confluent* upon the Face, there is the same Danger as if the Body was cover'd with the same Sort: The Observation holds too, *vice versa*. Now, agreeable to what has been said, if the variolous Infection enters chiefly at the Vessels of the Nose, Mouth and Throat, which has been shewn to be the Places it is most likely to enter at when the Infection is taken in the natural Way, the Crisis of the contagious Fever will be principally determined that Way. But the *Carotid* Arteries and others, which supply those Places as well as the Face, send likewise considerable Branches into the Brain, so that a proportionable Part of the same Sort of inflammatory Particles that constitute the Pustles on the Face, must be lodg'd in the *Membranes* of the Brain; and as they are of a mild and benign Sort or otherwise, will produce more or less Danger in the Course of the Disease. For the Face consider'd in itself, is a Place of no Danger, and consequently one would imagine, no such Prognostic could be taken from it, but when for the Causes assigned, it comes to give certain Indications of the State of so important a Part as the Brain, the Case differs widely, and the Reason of Sydenham's Observation appears evident.

BUT besides this, the Advantages described, arising from the Manner of receiving

receiving the Infection by Inoculation, are confirm'd by Experience ; for it is a Thing well known in this Place, that at different Times, while the SMALL-Pox was very mortal among those who took the Infection in the natural Way, great Numbers were inoculated, a careful Preparation being little practised, yet few, very few indeed, miscarried. Nor can this various Success be ascribed to the Care taken in communicating the Infection from a Pock of a good Kind by Inoculation ; for we see frequent Instances of those, who live in the House where the SMALL-Pox of the worst Kind is, having, notwithstanding, the Disease mild and moderate ; whilst others again, who never had been near any in the confluent Sort, yet have it in the most violent Manner : Nay, some who have been inoculated from a Pock of the best Kind, have nevertheless had the worst. So that tho' it be a Practice to be very careful in getting the Infection from a Pock of a good Kind, and to be sure there is no Harm in it, yet it would seem to be a Matter of small Importance. If therefore the experienced Success of Inoculation can neither be ascribed to the Preparation of the Body, which was but little practised, or to that of taking the Infection from a Pock of a good Kind, which appears to be of no Moment, I cannot see any other possible Way of accounting for it, but from the different Way of receiving the Infection. I have endeavour'd to do this by Arguments, as I think, drawn from fair Reason, and just Observation ; and I hope by this Time it appears sufficiently plain, that it is by far the safest and most eligible Way to take the variolous Infection by Inoculation.

HAVING thus finished what I intended on the three Heads of the Discourse, I come now in the last Place to make a few Reflections on the whole.

AND first, from what was hinted in the Beginning of this Discourse, that an epidemical Constitution of the Air for producing this Distemper is sometimes more, and sometimes less pernicious : I should think the best Time for getting over this Disease would be when it was accidentally brought to a Place, and there was nothing in the Air to favour it at all, or when the *epidemical Pock* was of a good Kind : For the Disease is to be suffered but once, and once every one who travels, or is obliged to be often in large Cities where it comes, must in all human Probability have it. And the History of the Disease shows, that it is at some Seasons much more mortal, than at others. Certainly therefore it will be running the least Risque, to try to get over the threatening Danger at the Season abovementioned.

SECONDLY ; If those Parts the Infection enters at, be of such Consequence as to determine the Crisis of the contagious Fever principally that Way, it will undoubtedly be best to convey it at those Branches of the *vascular System* which have the most distant Communication with the Vessels that supply the more noble Parts. For this Reason, I should imagine it would be safest to inoculate in the *lower* Extremities rather than the *upper*, because the *axillary* Arteries,

Arteries, which chiefly supply the Arms, come from the *Subclavians*, and they derive their Origin from what is called the ascending Trunk of the *Aorta*, which sends off all those Branches which supply the Head, and a great Part of the *Thorax*, where the vital and dangerous Parts are contained. Now, should the Crisis be principally determined towards the Arm where the Inoculation was performed, the vital Parts will be in more Danger of partaking of it, than if it was determined towards the Legs and Feet, as the Course of the Blood in those Vessels from whence the lower Extremities are supplied, lead quite a different Way. I know the common Practice is to inoculate in the Arm, and perhaps a Sore in the Feet or Legs may be somewhat more inconvenient; but a Probability of greater Safety, in a Matter where Life itself is concerned, ought certainly to take Place of a mere Convenience. These Sores are sometimes extremely troublesome, and difficult to heal, giving forth a thin, ichorous, corroding Matter, which both eats and inflames the adjacent Parts. To prevent or remedy this, about three or four Half Drachms of Jesuits Bark given at so many Doses through the Day, will, I believe, seldom or never fail to bring good Matter into the Sore, and dispose it to heal. I am sensible this Effect of the Bark in bad Sores, and even in the Pustles of the SMALL-Pox, has been taken Notice of, and made known to the World by the deservedly famous * *Monro*, of *Edinburgh*, whose Name, as one of my first Masters in the healing Art, it is my Duty always to mention with Gratitude and Honour. But having often experienced its good Effects in this particular Case, I judg'd there would be nothing amiss in mentioning it by the bye.

But thirdly; From what has been said concerning this Disease, and the Advantages of a well prepared State of Body for receiving it, I think it clearly follows, that it will be much the safest Method to have the Body put into that State at all Times when the Disease is expected, as well in those who are determined to wait for it in the natural Course of Things, as in those who premeditately take the Infection. For tho' the SMALL-Pox be frequently got over in a very easy Manner without any Precaution, yet as it often proves a dangerous and mortal Distemper, too much Care cannot well be taken in a Matter of such Importance. Inoculation has been shewn to be much the best and safest Way of taking the Infection, yet even in this way it sometimes proves mortal; and indeed, considering how uncautiously and precipitantly this is often done, I am surpris'd it has not been much more frequently the Case. Inoculation seems to be consider'd by many as a mere surgical Operation, and accordingly we see almost every one who knows how to handle a Lancet intrusted with the whole Management of it: But it has been shewn, that what ought to be done on

On this Occasion for the Safety and Security of the Patient, a judicious and skilful Physician only can judge. In Matters of Property and Interest prudent Men are always cautious and circumspect, in proportion to the Value of the Thing in Danger. Now here, Life itself, the most valuable of all earthly Things, is liable to be put in the most imminent Danger by Mismanagement and want of Skill ; and yet of all Professions in *America*, the true Qualifications of a Physician are the least examin'd into. This seems something strange and inconsistent, but the Fact is notorious. It may, perhaps, be occasion'd, in some Measure, by a Notion which prevails even among some from whom better Things might be expected, that Physic is not a *real Science*, founded on just and rational Principles, but a Sort of *Knack* to be got intirely by Practice, which an ignorant, illiterate Person, may as readily attain, as one of Learning and Knowledge, who had taken due Pains to study it. If this was the true Notion of Physic, the Distinction betwixt Physician and Quack would be without Foundation, for that is in Reality the Principle on which Empiricism is founded. But the ablest Physicians in all Ages have repeatedly confuted it, and prov'd it to be in the highest Degree senseless and absurd. They have bore their publick Testimony against it, as an injurious Slander on their Profession, exceedingly hurtful too in its Consequences to Mankind, as serving for a Cloak to screen Impostors. In every Country of the known World, where Learning flourishes, Physic is regularly taught as a Science, and studied as such by all those who qualify for practical Physicians. But without entering minutely into the Argument, whoever will be at the Trouble of making only a slight Examination into this Matter, will soon be convinc'd that the human Body is a *pure Machine*, and that its Disorders are not to be understood, however often they may be seen in Practice, without a particular Knowledge of its Organization and Structure. They would soon confess with *Dr. Mead*, that “ *He is likely to be the best Physician, who having the same Assistance of Observations and Histories with others, best understands the *Human OEconomy*, the Texture of the Parts, Motions of the Fluids, and the Power which other Bodies have to make Alterations on any of these.” In the Knowledge of these Things, consists what is call'd the *Theory* or Principles of Physic, without which, says *Sydenham*,† He who endeavours to conquer Diseases, will be something like the *Roman Andabatae*, a sort of *Gladiators*, that us'd to fight blindfolded ; or like a Mariner, who goes to Sea without a Compass. That some Things in this *Human OEconomy* are not thoroughly understood, may be easily granted, and is undoubtedly true ; yet nothing follows from the Concession, but that the Science is not perfect ; and I would desire to know what

* *Mechanical Account of Poisons*. Fourth Edit. Page 13, of the Preface.

† *Opera Universa*. Pagin. 490.

what human Science is? Many Things are certainly known concerning it, and he who knows these Things best, must be best qualified to judge of Observations in Practice ; and he who is ignorant of them, understands nothing that he sees, and is not qualified for Practice at all. Yet the Mischiefs committed by the ignorant Professors of Medicine are seldom publicly known, because the noxious Things they administer work all their Effects in the dark, within the hidden Recesses of the Body, which the greatest Part of Mankind are not qualified to judge of ; and therefore are easily made believe proceeded not from the injudicious Administration, but the Malignity of the Disease, or some other Cause, which either the Empiric himself through Ignorance thinks the true One, or artfully invents to save his Character. This however is an Unhappiness much easier lamented than remedied, unless the Legislature was to interpose in Behalf of the Safety of the People, and appoint proper Persons to judge of the Qualifications of those who were permitted to Practice. This, I believe, has been done by all the well regulated Governments of *Europe* ; and there is certainly a better Reason why it should be done in a young Country, where the Arts and Sciences are but in their Infancy, because there the Bulk of the People being more illiterate, are more liable to be impos'd on, as they will be less capable of detecting Impostors.

You, Gentlemen, have made a laudable Attempt to erect an Academy in this Place for the Advancement of Literature, and the Improvement of the liberal Arts ; I heartily wish your generous Endeavours may be crown'd with Success, to the utter Mortification and Discouragement of Impostors of all Kinds, and the Increase of true Knowledge, which is the Source of all individual, as well as social Happiness.

The E N D.